

REMARKS:

Claims 1, 3-4, and 7-29 are pending in the present application.

Applicants appreciate the Examiner's thorough examination of the application. In response to the Examiner's initial rejections of all claims of the present application as being anticipated by or obvious in view of certain prior art references, Applicants have amended the independent claims and respectfully submit that all claims are now in condition for allowance.

Claim 1 of the present application has been amended to recite that the filler comprises "a plurality of micro balloons, each having a shell and deflecting light incident thereon," a limitation similar to that included in original claim 5. In this regard, claim 5 was initially rejected as being obvious in view of a combination of Japanese Patent Publication No. JP 61-165583 (Takeichi) and U.S. Patent No. 4,195,907 (Zamja et al.). Specifically, the Examiner contended that Takeichi teaches all elements of the claimed invention, with the exception of "micro air balloons," and further that it would be obvious to "modify the device of Takeichi by providing the rod-like member composed of flexible material with impregnated micro air-balloons as taught by Zamja." See Office Action at p. 5, ¶ 6.

In the present application, however, the clear objective is to cause "the collective light pattern on the light-emitting surface of the waveguide [rod-like member] to appear to an observer to have a uniform intensity along the length of the waveguide [rod-like member]." See Application at p. 8, lines 11-12. This is readily contrasted to Zamja, in which the "optical inhomogeneities" are used to create "decorative points of light." Specifically, "[a] viewer will see a point or spark of light at this place along the length of the fiber." See '907 Patent at column 3, lines 36-37. Accordingly, there appears to be no suggestion or motivation for

combining the Takeichi and Zamja references. Quite to the contrary, modifying the device of Takeichi by providing the rod-like member with the “optical inhomogeneities” taught by Zamja would cause the device to fail to satisfy the objective of providing a uniform light intensity pattern along the length of the rod-like member. In this regard, it is well-recognized that “a proposed modification [is] inappropriate for an obviousness inquiry when the modification render[s] the prior art reference inoperable for its intended purpose.” In re Fritch, 972 F.2d 1260, 1265 at n.12, 23 USPQ2d 1780, 1783 at n.12 (Fed. Cir. 1992), citing In re Gordon, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed Cir. 1984). Thus, Applicants respectfully submit that the combination of the Takeichi and Zamja references is improper.

Furthermore, regardless of the propriety of combining the references, “the prior art references (or references when combined) must teach or suggest all of the claims limitations.” M.P.E.P. § 706.02(j) (emphasis added). However, Takeichi and Zamja, in combination, still fail to teach all of the limitations of amended claim 1. Specifically, claim 1 has been amended to clarify that the micro balloons are not merely air bubbles, but rather structural elements that include a shell. Neither Takeichi nor Zamja teach the impregnation of such structural elements into a rod-like member for creating a substantially uniform light intensity pattern along the length of the rod-like member.

For the reasons set forth above, Applicants respectfully submit that claim 1, as amended, is neither anticipated by nor obvious in view of the cited prior art references, and therefore, is now in condition for allowance. Claims 3-4 and 7-18 depend from claim 1 and are believed to be allowable in view of the remarks presented above with respect to claim 1.

Similarly, claim 19 has also been amended to recite that the filler comprises “a plurality

of micro balloons, each having a shell and deflecting light incident thereon.” Again, irrespective of the propriety of combining the teachings of the Takeichi and Zamja references, neither reference teaches the impregnation of such structural elements into a rod-like member for creating a substantially uniform light intensity pattern along the length of the rod-like member.

Finally, claims 25-29 have been added to the present application. Claim 25 recites an illumination device for simulating neon lighting that includes four primary elements: (1) a substantially rod-like member composed of a substantially flexible compound and defining an internal channel extending substantially along its predetermined length; (2) a flexible circuit board received in the internal channel; (3) a multiplicity of spaced point light sources arranged in a line along said flexible circuit board; and (4) a collection surface positioned near said multiplicity of spaced point light sources for collecting and reflecting light into said rod-like member, which results in a substantially uniform light intensity pattern along the light-emitting surface of the rod-like member.

As the Examiner recognized, the primary prior art reference cited against the original claims of the present application, Takeichi, fails to describe such a construction for an illumination device, for example, failing to describe or even suggest a flexible circuit board. In the initial Office Action, however, the Examiner commented on certain claims that included a recitation of a flexible circuit board, noting that it would be obvious “to further modify the rod-like member of Takeichi by providing flexible circuit board bearing a plurality of LEDs as taught by Luk (‘094 B2)....” Applicant respectfully disagrees.

It is well-settled that a claimed invention can “not be obvious without a demonstration of the existence of a motivation to combine those references at the time of the invention.” National

Steel Car Ltd. v. Canadian Pacific Railway Ltd., 69 USPQ2d 1641, 1654-55 (Fed. Cir. 2004), citing Ecolochem, Inc. v. S. Cal. Edison Co., 227 F.3d 1361, 1371, 56 USPQ2d 1065 (Fed. Cir. 2000). Takeichi teaches a construction of an illumination device in which the light-emitting diodes are connected to conductive wires within the “flexible wrapping body” and are arranged in a line, with light being emitted toward a common light-emitting surface. In other words, Takeichi describes an illumination device that includes no circuit board, and the inclusion of a circuit board would not be beneficial from a manufacturing standpoint as alleged by the Examiner, but to the contrary, would unnecessarily complicate the construction. Thus, there simply is no motivation or suggestion to replace the conductive wires with a flexible circuit board. And, “[t]he mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification.” In re Gordon et al., 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984) (emphasis added) (citations omitted).

Furthermore, and perhaps more importantly, U.S. Patent No. 6,846,094 (Luk) describes a flexible helical circuit board that is positioned in a flexible tube. The helical construction is critical to achieving the objective of “omni-directional light dispersion.” Incorporating the helical circuit board taught by Luk into the illumination device taught by Takeichi would result in a device in which there is omni-directional light emission, as opposed to having the light-emitting diodes emitting and directing light toward a common light-emitting surface. While “omni-directional light dispersion” is important in the construction taught by Luk, if incorporated into the illumination device taught by Takeichi, it would result in substantially decreased brightness and a non-uniform light intensity pattern along the light-emitting surface.

Again, “a proposed modification [is] inappropriate for an obviousness inquiry when the modification render[s] the prior art reference inoperable for its intended purpose.” In re Fritch, supra.

For the above reasons, Applicants respectfully submit that the combination of the Takeichi and Luk is improper. Claim 25 is thus believed to be in condition for allowance. Claims 26-29 depend from claim 25 and are also believed to be allowable in view of the remarks presented above with respect to claim 25.

Respectfully submitted,



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